

Claims:

1. An information processing system including at least one first communication-enabled information processing device equipped with a user interface and at least one second communication-enabled information processing device equipped with no user interface are connected to each other through a communication network, said system being characterized in that:

said first communication-enabled information processing device has at least a storage section storing a driver program for a user input/output device, and a storage section storing a program for emulating said second communication-enabled information processing device through the user interface, said user input/output device being connected to said first communication-enabled information processing device; and

said second communication-enabled information processing device has a BIOS (Basic Input Output System) storage section which stores at least a check program for checking the operation of a communication control section, an address acquisition program for acquiring a second address number of said second communication-enabled information processing device in the communication network, and a program for establishing a link with said first communication-enabled information processing device, and an OS (Operating System) storage section which stores at least a program for inheriting said second address number and changing said second address number if needed, and a program for inheriting the link with said first communication-enabled information processing device.

2. The information processing system according to Claim 1, wherein said storage section storing the emulation program has a link request reply program by which said first communication-enabled information processing device establishes a link and notifies said second communication-enabled information processing device

when said first communication-enabled information processing device receives a link request message sent from said second communication-enabled information processing device during BIOS operation.

3. The information processing system according to Claim 1, wherein said storage section storing the emulation program has an offer program by which said first communication-enabled information processing device sends a link offering message to said second communication-enabled information processing device when said first communication-enabled information processing device receives a message sent from said second communication-enabled information processing device during BIOS operation for locating a first communication-enabled information processing device as a link destination.
4. The information processing system according to Claim 1, wherein said storage section storing the emulation program has an autopause and autosetup program having the functions of automatically pausing a POST output message and automatically entering a setup screen when said second communication-enabled information processing device is executing a POST (Power-On Self Test) during BIOS operation.
5. The information processing system according to Claim 1, wherein said storage section storing the emulation program has a screen refresh request program by which said first communication-enabled information processing device requests said second communication-enabled information processing device to transmit data corresponding to one frame for refreshment of said display screen of said first communication-enabled information processing device.
6. The information processing system according to Claim 1, wherein said storage section storing the emulation program has a program by which said first communication-enabled information processing device notifies said second communication-enabled

information processing device of a changed first address number and reestablishes a link at a request from said second communication-enabled information processing device when said first communication-enabled information processing device receives from said second communication-enabled information processing device a request message for changing the current first address number of said first communication-enabled information processing device.

7. The information processing system according to Claim 1, wherein said BIOS storage section has a program for transmitting presentation data in a text format from said second communication-enabled information processing device to said first communication-enabled information processing device.
8. The information processing system according to Claim 1, wherein said BIOS storage section has a program for transmitting presentation data in a graphic format from said second communication-enabled information processing device to said first communication-enabled information processing device.
9. The information processing system according to Claim 1, wherein said BIOS storage section has a program for checking at least existence of said second address number stored in nonvolatile storage.
10. The information processing system according to Claim 1, wherein, in said BIOS storage section, either a program for checking the operation of the user interface is not provided or it is set in a suspended state.
11. A method to implement a BIOS operation stage in a communication-enabled information processing device equipped with no user interface comprising:

(1) initiating power and starting a POST (Power On Self Test);

- (2) checking the operation of a communication control section;
- (3) acquiring a second address number of said communication-enabled information processing device in a communication network;
- (4) establishing a link between a first and said second communication-enabled information processing devices;
- (5) sending presentation data to said first communication-enabled information processing device;
- (6) executing contents received from said first communication-enabled information processing device;
- (7) terminating the POST; and
- (8) booting an OS (Operating System).

12. The method according to claim 11 further including:

- (9) inheriting the link established in said BIOS operation stage and the second address number;
- (10) transmitting presentation data to said first communication-enabled information processing device; and
- (11) executing contents received from said first communication-enabled information processing device.

13. The method according to Claim 11, wherein acquiring a second address number includes checking whether said second address number (3) is stored as a fixed value in a nonvolatile storage section.
14. The method according to Claim 13, wherein acquiring a second address number (3) includes acquiring said second address number by a DHCP (Dynamic Host Configuration Protocol) if said second address number is not stored as a fixed value in the nonvolatile storage section.
15. The method according to Claim 13, wherein acquiring a second address number (3) includes using a default second address number if said second address number cannot be obtained by the DHCP.
16. The method according to Claim 11, wherein establishing a link (4) includes checking whether a first address number of the first communication-enabled information processing device is stored in the nonvolatile storage section.
17. The method according to Claim 16, wherein establishing a link (4) includes requesting said first communication-enabled information processing device to establish a link when said first address number is stored in the nonvolatile storage section.
18. The method according to Claim 17, wherein establishing a link (4) includes storing a first address number in the nonvolatile storage section if a reply including said first address number is received in a predetermined time period from said first communication-enabled information processing device in response to the link establishment request.

19. The method according to Claim 17, wherein establishing a link (4) includes transmitting a message for finding said first communication-enabled information processing device to the communication network by multicasting if no reply including the first address number is received in the predetermined time period from said first communication-enabled information processing device in response to the link establishment request.
20. The method according to Claim 16, wherein establishing a link (4) includes transmitting a message for finding said first communication-enabled information processing device to the communication network by multicasting if said first address number is not stored in the nonvolatile storage section.
21. The method according to Claim 19, wherein said establishing a link (4) includes checking whether or not there are a plurality of offers when an offer from said first communication-enabled information processing device is received in the predetermined time period as a result of multicasting the message for finding said first communication-enabled information processing device to the communication network.
22. The method according to Claim 21, wherein said establishing a link (4) includes selecting said first communication-enabled information processing device that transmitted the offer first received in a case where there are a plurality of offers as a result of multicasting the message for finding said first communication-enabled information processing device to the communication network.
23. The method according to Claim 22, wherein establishing a link (4) includes requesting said first communication-enabled information processing device that transmitted the offer first received to establish the link.

24. The method according to Claim 21, wherein establishing a link (4) includes requesting said first communication-enabled information processing device that transmitted the received offer in a case where there are not a plurality of offers as a result of multicasting the message for finding said first communication-enabled information processing device to the communication network.
25. The method according to Claim 23, wherein said establishing a link (4) includes storing the first address number in the nonvolatile storage section if a reply including said first address number is received in the predetermined time period from said first communication-enabled information processing device in response to the link establishment request.
26. The method according to Claim 23, wherein said establishing a link (4) includes checking whether or not said second address number is a fixed value stored in the nonvolatile storage section if no reply including the first address number is received in the predetermined time period from said first communication-enabled information processing device in response to the link establishment request.
27. The method according to Claim 26, wherein said acquiring a second address number (3) is repeated if in said establishing a link (4), said second address number is a fixed value stored in the nonvolatile storage section.
28. The method according to Claim 11, further comprising after establishment of a link between the first and said second communication-enabled information processing devices during BIOS operation or OS operation:
- (12) in said first communication-enabled information processing device, transmitting a request to said second communication-enabled information processing device for transmission of data corresponding to one frame for refreshment of the display screen

of said first communication-enabled information processing device; and

(13) in said second communication-enabled information processing device, transmitting presentation data corresponding to one frame to said first communication-enabled information processing device when the request for transmission of data corresponding to one frame is received.

29. The method according to Claim 11, further comprising the steps of:

(14) in said second communication-enabled information processing device, transmitting a request to said first communication-enabled information processing device for changing the first address number used in said first communication-enabled information processing device;

(15) in said first communication-enabled information processing device, transmitting a changed first address number when the request for changing said first address number is received;

(16) in said second communication-enabled information processing device, requesting said first communication-enabled information processing device to establish a link between said first and second communication-enabled information processing devices; and

(17) in said first communication-enabled information processing device, transmitting a notice of establishment of a link to said second communication-enabled information processing device when the request for establishment of a link is received.

30. A system for use in a network including at least one communication-enabled information processing device having no user interface comprising:



a communication enabled information processing device equipped with a user interface;

I/O devices operatively coupled to said user interface; and

a storage section, in said user equipped processing device, storing a driver program for a user input/output device, and a storage section storing a program for emulating said second communication-enabled information processing device through the user interface.